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Fig. 9. Mandible of larva.

Fig. 10. Egg mass.

Fig. 11. Diagram of alimentary canal of larva five weeks old; *fnt*, fore intestine; *mint*, mid intestine, *hint*, hind intestine; *mt*, malpighian tubule; *sq*, spinning gland; *sp*, silk press.

Fig. 12. Diagram of alimental canal of larva four months old, spinning glands removed.

FALL NOTES ON SOME ALABAMA BUTTERFLIES.

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NEW YORK, N. Y.

It so happens that comparatively little has found its way on record concerning the butterflies to be found in that part of our country comprised within the boundaries of the state of Alabama. In the belief that the little I am able to offer toward supplying this lack may prove of interest, the following notes are submitted respecting those species met with during a short visit to the south-central part of that state in the late fall of 1918.

The exact locality was a plantation home in the midst of wide acres under cultivation in the so-called black-belt, four or five miles beyond the settlement of Hazen which lies about seventy miles southwest of Montgomery. Here I spent the last ten days of October and the first week in November, housed by almost continuous rains accompanied by chill winds. But occasionally there would be sunshine for an hour or so, rarely all day; and although the season of flowers was past, the few wild asters along the fences being soon stripped of their blooms by the storms, butterflies of certain species abounded, fluttering over the grass everywhere. Perhaps the most abundant was *Eurymus eurytheme* Bdv., form *amphidusa* Bdv., showing a wide range in the proportionate extent of the orange and yellow suffusion, with here and there a female of the white form corresponding to the white female of *E. philodice* Godt. of our northern meadows. The latter species was also present, although in comparative scarcity. A close rival in abundance to *E. eurytheme*, and hovering over the grass in close association with it, was *Eurema euterpe* Men., familiar to us in the neighborhood of this city. This genus was represented by four species, all of them door-yard fliers,

Eurema euterpe, referred to above, *E. delia* Gram., flying with it though not nearly so numerous, and in the field hard to distinguish from it until captured, so rapidly does it move its wings with the tell-tale band on the primaries' lower margin. And as for the *delia* females I suspect that many a specimen was overlooked, being misled by its *euterpe*-like dress. *E. jucunda* Bdv. all but escaped me too, looking like a faded *delia*; while *E. nicippe* Cram., the fourth, demanded sharp attention to differentiate the occasional example from the hosts of male *Eurymus eurytheme*. Of the Hesperids *Pyrgus tessellata* Scud. was distinctly a meadow species, very abundant, rarely rising in its flight above the tops of the grasses, that is, above eight or ten inches from the ground surface, and from the freshness of many of the specimens noted evidently a brood just emerged. *Lerodea eufala* Edw. was also taken in the grass; but *Atalopedes campestris* Bdv. was found only on the aster blossoms, which disappeared during the last week in October. Another species that proved especially partial to the asters was *Dione vanilla* Linn., most numerous, and in life with the most brilliant red coat of any of our red butterflies. It was a constant joy to see them clinging to the swaying stems, generally two or more on the same flower spray, or fluttering in their quest for a more tempting feast. *Phyciodes tharos* Dru. was everywhere in the grass; *Vanessa virginensis* Dru., better known to most of us as *huntera*, was another old acquaintance, but by no means common; while in the fields *Euptoieta claudia* Cram., a very few *Danaus archippus* Fab., and an occasional ubiquitous *Pieris rapæ* Linn. were noted. The dry limerock road in front of the house had its frequenters too, including *Polygonia interrogationis* Fabr., and the little peacock *Junonia cænia* Hubn. Close to the house in a bed of garden asters *Papilio cresphontes* Cram. lingered too long for his own good; while flying high overhead, bound for other parts, black swallow-tails were sometimes seen, of which the only one taken proved to be *P. philenor* Linn.

My most important observations however were the following, one having to do with a new record for the section treated of, the other with an interesting manifestation of instinct in a common southern species. On the fourth of November, a bit further afield than I was wont to wander, I saw what I supposed was a tailed *Polygonia*, but having netted it discovered I had taken an *Anæa*, presumably *portia*

Fabr., and I so labelled it. Upon consulting the books for the recorded range of that species after my return north, and becoming more than doubtful of the correctness of my identification, I brought it over to the American Museum, and there sought the good offices of Mr. Frank E. Watson, with the result that we may now add a state as far southeast as Alabama to the known range of *Anæa andria* Scud., heretofore given as comprising the Mississippi Valley west to Texas.

My other observation has to do with *Catopsilia eubule* Linn. Throughout my stay, day after day, whenever the rain would let up, these rather heavy but withal swift fliers were passing overhead from a little west of north to a little east of south, apparently in a bee line for the Florida peninsula. Never in a swarm, sometimes fifteen or more minutes apart, they passed by ones, twos, threes, in a continuous stream; never aimlessly fluttering about, never changing their general direction, but high up in air, usually far beyond reach of my net, and with remarkable speed, they journeyed almost in the teeth of the prevailing southeasterly wind, with every indication of consciously seeking a definite distant goal. I had almost despaired of netting any of them, until during the first week in November I discovered that a large ochra planting, in full bloom back of the house, would occasionally tempt one or two to turn aside from the business in hand and for a brief space settle to a draught from the deep corolla of their blooms. And I know of no butterfly, no matter how protectively marked its under surface, that so perfectly melts into its resting place as does *eubule* when sipping the nectar from these blossoms, the match in shade and seeming texture being so exact. In this patch of ochra, by dint of patient waiting, a considerable series was taken, including several males of the color-form *sennæ* Linn. But those that escaped me never lingered long at the feast, soon rejoining the straggling cavalcade they had left, apparently intent on reaching warmer climes before the threatening frosts should overtake them. A migration was evidently in progress, one shared in by no other species, and persisted in by this frail and delicate looking butterfly in spite of an adverse head wind.¹

¹ Since the above was written Mr. Charles W. Leng has kindly called my attention to an almost exactly similar observation of a migratorial flight of this butterfly at Fayette Court House, 110 miles northwest of Hazen, by Mr. John M. Davis, which was recorded in *Insect Life*, III, p. 335.